

Application No.: 10/526,210
Amendment Dated: March 12, 2008
Reply to Office Action of: December 13, 2007

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Remarks/Arguments:

Claims 1-24 are pending and stand rejected.

By this Amendment, claims 1-12, 14 and 16-24 are amended, and new claims 25 and 26 are added.

No new matter has been added. Support for the claims can be found throughout the original specification and, for example, in the original specification at paragraphs spanning pages 24 and 25 and page 29, lines 17 to page 30, line 5.

Examiner Interview

The Examiner is thanked for his efforts with respect to providing the status for claims 6 and 20. The Examiner has clarified that claim 6 which is included in the rejection in item 4 over Yamaya et al. (U.S. Patent Publication No. 2002/0184387, hereafter referred to as "Yamaya") in view of Ma et al. (U.S. Patent No. 6,856,591, hereafter referred to as "Ma") in further view of Yip et al. (U.S. Patent No. 6,954,435, hereafter referred to as "Yip") and also in the rejection under item 5 over Yamaya in view of Ma and Yip and in further view of Srikanth et al. (EP 1006702, hereafter referred to as "Srikanth") should be considered in the rejection under item 5. Moreover, the Examiner clarified that claim 20 should be considered as rejected under item 7 as being unpatentable over Ma in view of Yamaya in further view of Srikanth.

Rejection of Claims 1 and 3-7 Under 35 U.S.C. § 103(a)

In the Office Action, at item 4, claims 1 and 3-7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamaya in view of Ma in further view of Yip.

This ground of rejection is respectfully traversed.

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After contacting the Examiner, Applicants confirmed that claim 6 is instead rejected under item 5 (and not item 4). Thus, Applicants will argue for the allowance of claim 6 over Yamaya in view of Ma and YIP in further view of Srikanth in the argument under item 5 and will not argue for allowance under this rejection.

Claim 1

Claim 1 is directed to a network connection apparatus for operating a plurality of network connection apparatuses connected to a local area network virtually as one network connection apparatus, and recites:

when the state monitor section decides that the network connection apparatus is not in the operating state, the priority comparing section commences a process for arbitration between the network connection apparatuses in the standby state to transition to the operating state by use of a master transition timer at a time deciding that the priority possessed is higher than the priority information within the advertisement message received.

That is, when the state monitor section decides that the network connection apparatus is not in an operating state, the priority comparing section commences a process for arbitration at a time deciding that the priority possessed is higher than the priority information within the advertisement message received. Thus, arbitration begins at the time of deciding that the priority possessed is higher than the priority information received.

Yamaya and Ma References

In the Office Action, at page 8, the Examiner acknowledges that Yamaya and Ma are "silent with regard to the arbitration process as recited in **claim 1.**"

Yip Reference

Yip discloses a step of comparing the degree of priority, and replacing the router with another one based on the result of the comparison. Yip, however, does not disclose when the process for arbitration is commenced. More particularly, Yip discloses that at block 360, an election process is performed by comparing the relative values of the tracked priority fields for each of the Standby Router Protocol (SRP) routers for a given virtual router ID. If any of the slave SRP routers' tracked priority field values are greater than or equal to the current master SRP routers' tracked priority field value, then an election 365 is triggered to determine which of the slave/backup routers participating in the virtual network has the highest priority. At block 370 of Yip, the newly elected master SRP routers sends its subnet route to all of the other routers, and commences default routing for the subnet once the old master SRP router times out. (See Yip at col. 6, lines 1-12.) Thus, the only timing disclosed in Yip provides for the commencement of default routing after the old master SRP router times out. Yip, however, is silent regarding when the arbitration (comparison of router relative values of the tracked priority fields) commences.

In the Office Action, at page 12, the Examiner contends that Yip discloses that an arbitration is commenced "at a time that the priority possessed ('Router trades PDU that contains priority values', recited in col. 4, lines 23-40) is decided higher ('Router trades PDU that contains priority values', recited in col. 4, lines 23-40) in the priority comparing step ('comparing priority values and elects router with highest priority', recited in col. 4, lines 23-67 and col. 5, lines 1-8)." Yip, at the portions cited by the Examiner, however, merely discloses the tracking of SRP tracking parameters such that the relative priority values of the SRP routers are determined and the router with the highest priority value is elected. In one example, in the paragraphs spanning cols. 4 and 5, the election of R3 210 occurs after the

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comparison of relative priority values of the SRP routers 210 and R4 220. Such a condition, however, is different from the commencing of arbitration at a time that the priority possessed is decided higher in the priority comparing step. This is because, the commencement of the election process in Yip can occur any time after the comparison of the relative priority values of the SRP routers R3 210 and R4 220.

Further, as described on page 4, line 21 to page 5, line 4 of the specification of the present application, the conventional configuration described in the "Virtual Router Redundancy Protocol for IPv6" discloses that, "even where the backup router receives from the master router an advertisement message whose priority is lower than its own one, it does not immediately transit to a master but discards the received advertisement message." This results in switch over processing (i.e., an election) only after a time out occurs.

Accordingly, it is submitted that claim 1 patentably distinguishes over Yamaya, and Ma in further view of Yip for at least the above-mentioned reasons.

Claims 3-5 and 7, which include all of the limitations of claim 1, are submitted to patentably distinguish over Yamaya in view of Ma in further view of Yip for at least the same reasons as claim 1.

Rejection of Claim 6 Under 35 U.S.C. § 103(a)

In the Office Action, at item 5, claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamaya in view of Ma and Yip in further view of Srikanth.

This ground of rejection is respectfully traversed.

Claim 6, which includes all of the limitations of claim 1, is submitted to patentably distinguish over Yamaya in view of Ma in further view of Yip for at least the same reasons as claim 1.

The addition of Srikanth does not overcome the deficiencies of Yamaya, Ma and Yip. This is because, Srikanth does not disclose or suggest that "the priority comparing section commences a process for arbitration ... at a time deciding that the priority possessed is higher than the priority information within the advertisement message received," as required by claim 1. Instead, Srikanth discloses that each Virtual Routing Redundancy Protocol (VRRP) packet specifies a priority of the sending VRRP router. The higher the priority value, the higher the priority, e.g. 255 is the highest priority whereas priority decreases from 255 to 1. Zero is a special priority that the master virtual router uses in a VRRP packet when it wants to give up its role as the master virtual router. Srikanth further discloses that if an advertisement message from the master virtual router is received by a backup virtual router with a priority of zero, the master_down_timer is set to skew_time, so that a transition from backup virtual router (state 210) to master virtual router (state 215) occurs more quickly than otherwise. (See Srikanth at paragraph [0018].) Although, Srikanth teaches the adjustment of the period of transition from backup virtual router to master virtual router by setting the master_down_timer to the skew_time, Srikanth is silent regarding the use of an arbitration process when a special priority of zero is provided in the advertisement and, as such is also silent regarding its commencement. This is because, for example, Srikanth describes two routers as Master/Backup routers 105 and 110 such that these routers 105 and 110 do not arbitrate for master status with other routers, but instead, the backup router

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becomes the master router in certain circumstances. (See Srikanth at paragraphs [0008] and [0019].)

Accordingly, it is submitted that claim 6 patentably distinguishes over Yamaya in view of Ma and Yip in further view of Srikanth for at least the above-mentioned reasons.

Rejection of Claim 8 Under 35 U.S.C. § 103(a)

In the Office Action, at item 6, claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamaya in view of Yip.

This ground of rejection is respectfully traversed.

Claim 8, which includes similar but not identical features to those of claim 1, is submitted to patentably distinguish over Yamaya in view of Yip for at least similar reasons to those of claim 1.

Rejection of Claims 2, 9-19 and 21-24 Under 35 U.S.C. § 103(a)

In the Office Action, at item 7, claims 2, 9-19 and 21-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ma in view of Yamaya in further view of Srikanth.

After contacting the Examiner, Applicants confirmed that claim 20 is also rejected under item 7. Thus, Applicants will also argue for the allowance of claim 20 over Ma in view of Yamaya in further view of Srikanth.

This ground of rejection is respectfully traversed.

Claim 2

Claim 2 is directed to a network connection apparatus for operating a plurality of network connection apparatuses connected to a local area network virtually as one network connection apparatus, and recites:

when the state monitor section decides that the network connection apparatus is not in the operating state, the priority comparing section, in a case of the decision that the priority possessed is higher than the priority information in the received advertisement message, compares between a remaining time of the message timer section and a skew time calculated based on the priority possessed, to set the skew time to the master transition timer section when the skew time is shorter, so that, when the master transition timer section goes into a time-up, the state monitor section instructs the message processing section to send another advertisement message requesting for transition from the operating state into the standby state to the network connection apparatus.

That is, when the skew time is shorter than a remaining time of the message timer section, the master transition timer is set to the skew time such that when the master transition timer section goes into a time-up, the message processing section sends another advertisement message requesting transition of the network connection apparatus into the standby state.

Ma Reference

Ma discloses an active commander and a standby commander such that the virtual IP address and MAC address are transferred to the standby commander. When the operating active commander fails and the standby commander is normally operating the standby commander becomes the active commander. (See Ma at col. 12, lines 18-29.) Ma is silent regarding the timing of such a failover operation, and, more particularly, any condition (i.e. a comparison of a remaining time and the skew

time to set the skew time to the master transition timer when the skew time is shorter), for adjusting the timing of such a failover.

Yamaya Reference

Yamaya discloses a timer processing section 23d that carries out a count processing of advertisement timer and a master down timer. (See Yamaya at paragraph [0049].) The setting of a master router and a backup router to the routers 10 and 11 of Yamaya is based on the standard of a priority and the IP address owner. Yamaya further discloses that when the master router stops the master down timer, it starts the advertisement timer and when the backup router stops the advertisement timer, it starts the master down timer, respectively. Yamada, however, is silent regarding a comparison of a remaining time and a skew time or the setting of the master down timer to a skew time.

Srikanth Reference

The addition of Srikanth does not overcome the deficiencies of Ma and Yamaya.

This is because, as previously stated above in Srikanth, the master_down_timer is set to a skew timer when the special priority of zero is sent by the master virtual router. Srikanth, however, is silent regarding any comparison between the remaining time of the master transition timer section and a skew time calculated based on the priority possessed," as required by claim 2. Moreover, Srikanth is silent regarding the setting of the skew time to master transition timer section when the skew time is shorter. Instead, Srikanth discloses the adjustment of the master_down_interval to the skew_time whenever a special priority of zero is sent by the master virtual router. (See Srikanth at paragraph [0018].) That is,

Srikanth does not contemplate the comparison of the remaining time of the message timer section and the skew time calculated based on the priority possessed to set the master transition timer section to the skew time.

Accordingly, claim 2 is submitted to patentably distinguish over Ma in view of Yamada in further view of Srikanth for at least the above-mentioned reasons.

Claim 9

Claim 9, which includes similar but not identical features to those of claim 2, is submitted to patentably distinguish over Ma in view of Yamaya in further view of Srikanth for at least similar reasons to those of claim 2.

Claim 10-24

Claims 10-24, which include all of the limitations of claims 1, 2 or 9, are submitted to patentably distinguish over Ma in view of Yamaya in further view of Srikanth for at least the same reasons as claims 1, 2 or 9.

Rejection of Claims 2, 16-19, and 21-22 Under 35 U.S.C. § 103(a)

In the Office Action, at item 8, claims 2, 16-19 and 21-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuo et al. (U.S. Patent No. 7,209,435, hereafter referred to as "Kuo") in view of Srikanth.

This ground of rejection is respectfully traversed.

In the Office Action, at page 29, the Examiner acknowledges that Kuo is silent regarding "a skew time calculated based on a priority possessed, to set the skew time to the master transition timer section when the skew time is shorter, so that, when the master transition timer section goes into a time-up, the state monitor section instructs the message processing section to send an advertisement message

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requesting for transition of from operating state into standby state to the network connection apparatus operating as a network connection apparatus.”

Applicants agree with the Examiner’s acknowledgement. Moreover, for at least the same reasons as mentioned above with respect to item 7, Srikanth does not disclose or suggest such a feature either.

Accordingly, it is submitted that claim 2 patentably distinguishes over Kuo in view of Srikanth for at least the above-mentioned reasons.

Claims 16-19 and 21-22

Claims 16-19 and 21-22, which include all of the limitations of claim 2, are submitted to patentably distinguish over Kuo in view of Srikanth for at least the same reasons as claim 2.

New Claims 25 and 26

New claims 25 and 26, which include all of the limitations of claim 1, are submitted to patentably distinguish over the cited art for at least the same reasons as claim 1.

New claim 25 includes patentable distinctions beyond those of claim 1, namely “a network device switching section for selecting between: (i) a first mode in which switching of the network connection apparatus to the operational state is based on relative priorities in the advertisement message and that possessed by the network connection apparatus, and (ii) a second mode in which switching of the network connection apparatus to the operational state is based on a shutdown of one of the other network connection apparatuses, currently acting as the network connection apparatus in the operating state” (emphasis added).

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New claim 26 also includes patentable distinctions beyond those of claim 1, namely "responsive to: (1) the priority associated with the priority information possessed being higher than the priority associated with the acquired priority information; and (2) the state monitor section determining that the network connection apparatus is not in the operating state, the priority comparing section commences the process for arbitration between the network connection apparatuses in the standby state for transition to the operating state such that respective ones of: (i) the network connection apparatus, and (ii) the plurality of other network connection apparatuses that are in the standby state and have the possessed priority higher than the acquired priority, as candidate virtual network connection apparatuses, reduce the transition interval for transition from the standby state into the operating state, and the candidate virtual network connection apparatus having a highest priority has a shortest transition interval prior to sending a subsequent advertisement message" (emphasis added).

Consideration and allowance of these claim is respectfully requested.

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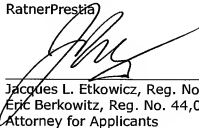
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Conclusion

In view of the claim amendments, new claims and remarks, Applicants submit the application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,

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